TA-F333ESR/F730ES

SERVICE MANUAL

AEP Model
UK Model
TA-F730ES

E Model
TA-F333ESR

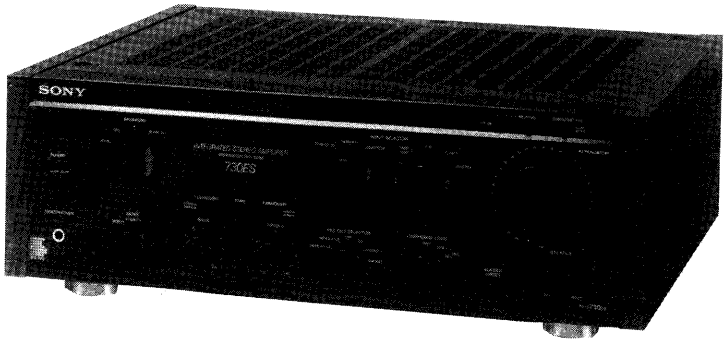


photo : TA-F730ES

REVISED

SPECIFICATIONS

Item	Condition		Data
Continuous RMS power outut (both channels driven simultaneously)	4 ohms, 20 Hz-20 kHz THD 0.008%	UK, E, WG model	145 W + 145 W (THD 0.008%) (DIN: 185 W + 185 W)
	6 ohms, 20 Hz-20 kHz THD 0.006%	UK, E, WG model	125 W + 125 W (DIN: 150 W + 150 W)
		AEP model	120 W + 120 W (DIN: 140 W + 140 W)
	8 ohms, 20 Hz-20 kHz THD 0.004%	UK, E, WG model	110 W + 110 W (DIN: 130 W + 130 W)
		AEP model	105 W + 105 W (DIN: 115 W + 115 W)
Power band width (IHF)	8 ohms, THD 0,02%		10 Hz - 100 kHz at 50 W
Dynamic headroom ('78 IHF)	4 ohms		3 dB
	8 ohms		2 dB
Total harmonic distortion	8 ohms, at 10 watt output		0.002%
Intermodulation (IM) distortion 60 Hz: 7 kHz = 4:1	4 ohm, at rated output		0.008%
	6 ohms at rated output		0.006%
	8 ohms at rated output		0.004%
Damping factor	8 ohms, 1 kHz		100
Residual noise	network A		less than 115μV
Frequency response	PHONO MM		RIAA equalization curve ±0.2 dB
	TUNER, CD, TAPE 1, 2, 3, DIRECT IN		2 Hz - 200 kHz $^{+0}_{-3}$ dB
Input sensitivity	PHONO	MC	3 ohms: 0.17 mV, 100 ohms
			40 ohms: 0.17 mV, 1 kohm
		MM	2.5 mV, 50 kohms
	TUNER, CD, DIRECT IN, TAPE 1, 2, 3 ADAPTOR IN		150 mV, 50 kohms

— Continued on page 2 —

INTEGRATED STEREO AMPLIFIER

SONY®

Item	Condition		Data
S/N (network)	PHONO	MC	68 dB 76 dB* (A)
		MM	80 dB 87 dB* (A)
*78 (IHF)	TUNER, CD, DIRECT IN, TAPE 1, 2, 3 ADAPTOR IN		84 dB 105 dB* (A)
Output voltage impedance	REC OUT 1, 2, 3 ADAPTOR OUT		150 mV, 1 kohm
			PREOUT 1.0 V, 100 ohms
	HEADPHONES		25 miliwatts (at 8 ohms) Accepts low and high impedance headphones.
Tone controls	BASS, at 100 Hz		$^{+4}_{-5.5}$ dB (turnover frq. 200 Hz)
			$^{+6}_{-7}$ dB (turnover frq. 400 Hz)
	TREBLE, at 10 kHz		$^{+7}_{-8}$ dB (frq. 3 kHz)
			$^{+4}_{-5}$ dB (frq. 6 kHz)
SUBSONIC filter	—		6 dB/octave attenuation below

General

System Preamplifier section: Low-noise high gain NFB type equalizer amplifier, passive type direct tone control
Power amplifier section: Pure-complementary SEPP power amplifier

Power requirements
AEP model : 220 V AC, 50 Hz
U K model: 240 V AC, 50 Hz
E model : 120 V, 220 V or 240 V AC adjustable, 50/60 Hz

Power consumption

AEP model : 260W
UK model : 800W
E model : 370W

AC outlet

AEP, UK model: 1 switched, 100watts max.
E model: 1 switched, 1 unswitched, 100 watts each

Dimensions

AEP, E model: Approx. 470 x 166 x 436 mm (w/h/d)
(18½ x 6⅝ x 17¼ inches)
U K model: Approx. 430 x 165 x 435 mm (w/h/d)
(18½ x 6½ x 17⅛inches)

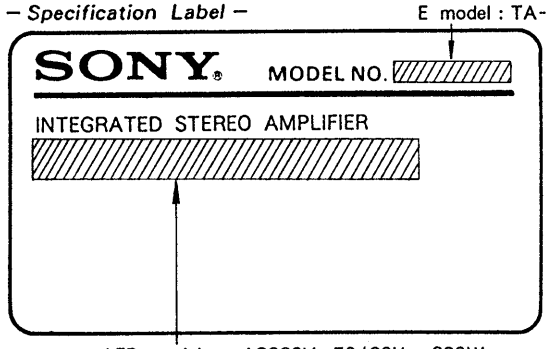
Weight

AEP, E model : Approx. 21.2 kg (46 lbs 12 oz) net
UK model : Approx. 19.9 kg (43 lbs 14 oz) net

MODEL IDENTIFICATION

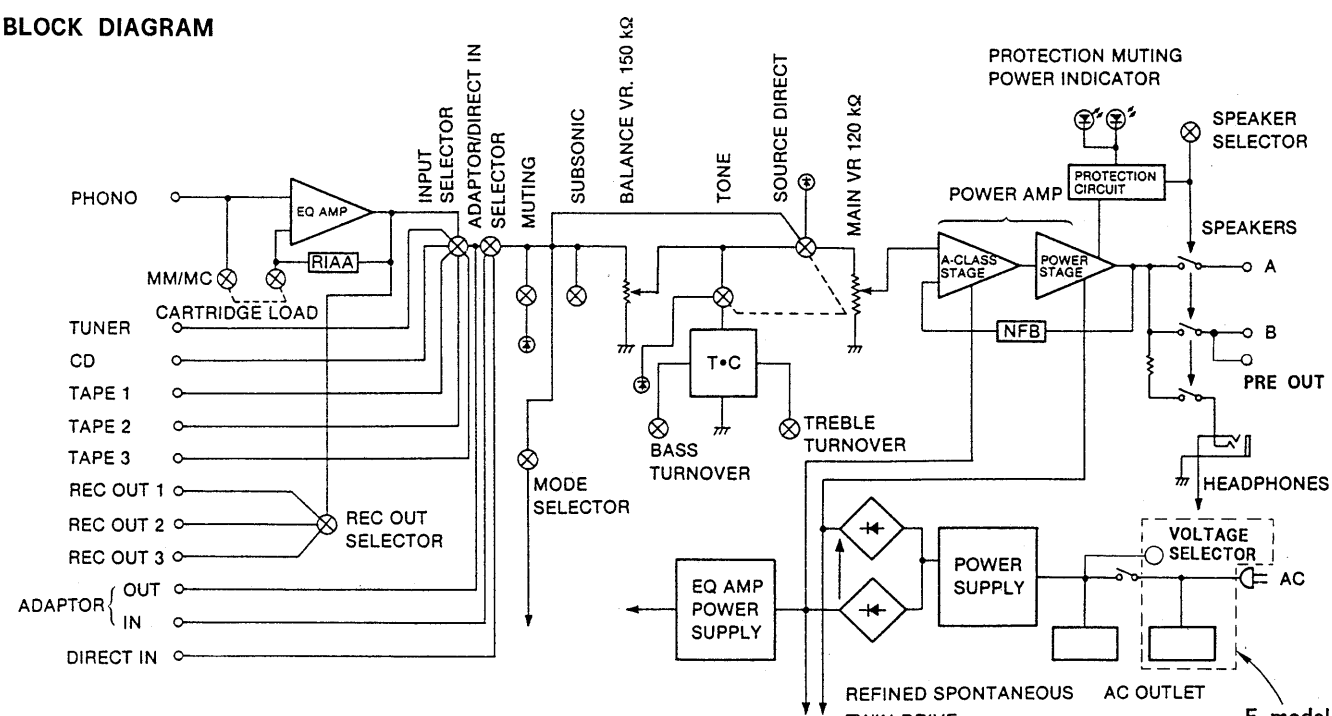
– Specification Label –

AEP, UK model : TA-F730ES
E model : TA-F333ESR



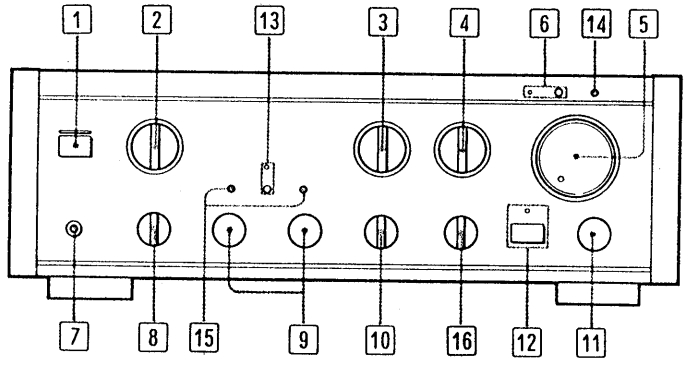
AEP model : AC220V~50/60Hz 260W
UK model : AC240V~50/60Hz 800W
West Germany model : AC220V 50/60Hz
E model : AC120/220/240V~50/60Hz 370W

BLOCK DIAGRAM



SECTION 1
GENERAL

Function of Controls



1 POWER switch and power/standby indicator
Immediately after turning ON the power, the standby indicator lights in red as the built-in muting circuit activates.
When the amplifier stays in a stable operating condition, the indicator lights in green.
The indicator lights in red when the unit detects shorting of circuit of the speaker outputs or in case of short-circuit of the inputs of DC components.
In such a case, disconnect the power source and check the connected components and speaker systems.

2 SPEAKERS selector
Select speaker system A or B, or both.
To use power amplifier or active speaker system connected to the PRE OUT jacks, set the selector to B/PRE OUT
For headphone monitoring only, set the selector to OFF.

3 ADAPTOR/DIRECT IN switch
Set to NORMAL to select program source by INPUT SELECTOR. To listen to a program source processed through adapter (graphic equalizer, for example) connected to ADAPTOR jacks, set the selector to ADAPTOR.
To listen to a program source connected to DIRECT IN jacks, set it to DIRECT IN.
Note that selecting ADAPTOR has no effect upon the signals output through the REC OUT jacks.

4 INPUT SELECTOR
Selects the desired program source.

5 ATTENUATOR knob
Regulates the sound level.

6 MUTING switch and indicator
Generally, keep the switch released (OFF).
Depress the switch to reduce the sound level by 20 dB. (Output voltage becomes 1/10.)

7 HEADPHONES jack (stereo phone jack)

8 MODE selector
STEREO: For listening to a stereo program.
MONO: For listening to a monaural program.

9 BASS and TREBLE controls

10 REC OUT SELECTOR
Selects the program source sent to the REC OUT jacks (rear panel).

11 BALANCE control
Controls the sound level of left and right speakers.

12 SOURCE DIRECT switch and indicator
Depress the switch. The red indicator lights and the circuits of the tone control, subsonic filter switch balance control and mode switch are disengaged without regard to the setting of the switches.
When this switch is activated, the indicator of the TONE switch does not light.

13 TONE switch and indicator
Depress the switch to activate the tone control circuit. Red indicator lights.

14 SUBSONIC filter switch
Depress the switch to reduce unwanted noise components of less than 15 Hz, which cause modulation noise.

15 TURNOVER frequency selection switches
Switch the turnover frequency.

16 CARTRIDGE LOAD selector
Set the selector according to your cartridge.
MM: For moving-magnet type cartridge
MC: For moving-coil type cartridge
40 Ω: For a cartridge with an impedance of 40 ohms or more.
3 Ω: For a cartridge with an impedance of 3 ohms to 40 ohms.

The selection of program source

Program source	INPUT SELECTOR	ADAPTOR/ DIRECT IN switch
For listening to record program**	PHONO	NORMAL
For listening to FM or AM (MW or LW) program	TUNER	NORMAL
For listening to CD	CD	NORMAL
For listening to taped program connected to TAPE 1 input jacks	TAPE 1	NORMAL
For listening to taped program connected to TAPE 2 input jacks	TAPE 2	NORMAL
For listening to taped program connected to TAPE 3 input jacks	TAPE 3	NORMAL
For listening to program source connected to DIRECT IN jacks	–	DIRECT IN
For listening to program source processed through adaptor	Desired program source	ADAPTOR

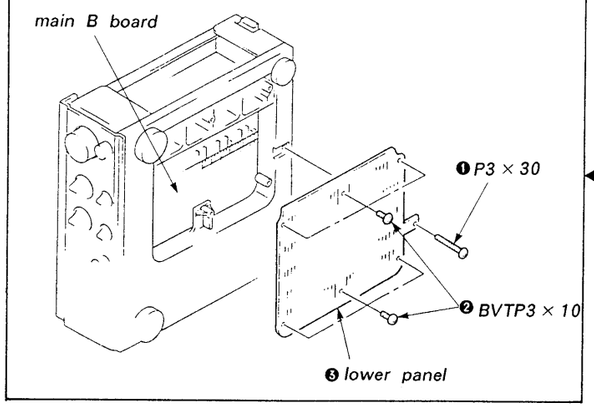
** Set the CARTRIDGE LOAD selector according to the cartridge being used.

REVISED

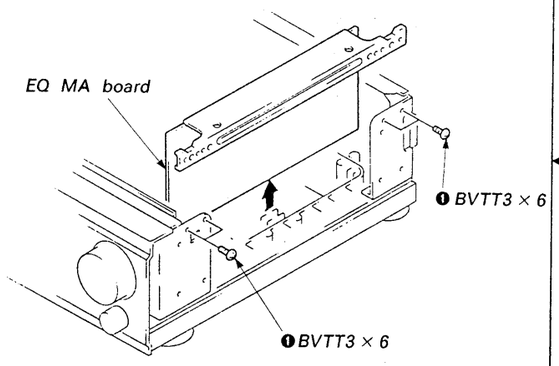
SECTION 2
DISASSEMBLY

NOTE : Follow the disassembly procedure in the numerical order given.

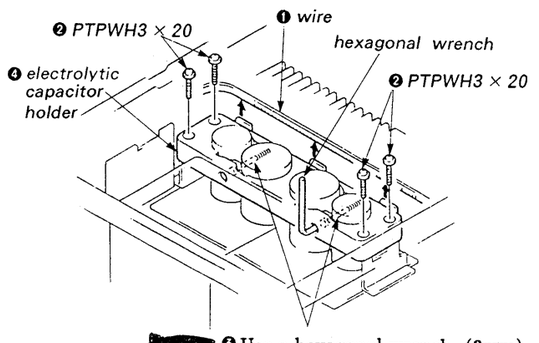
MAIN B BOARD INSPECTION



EQ MA BOARD INSPECTION



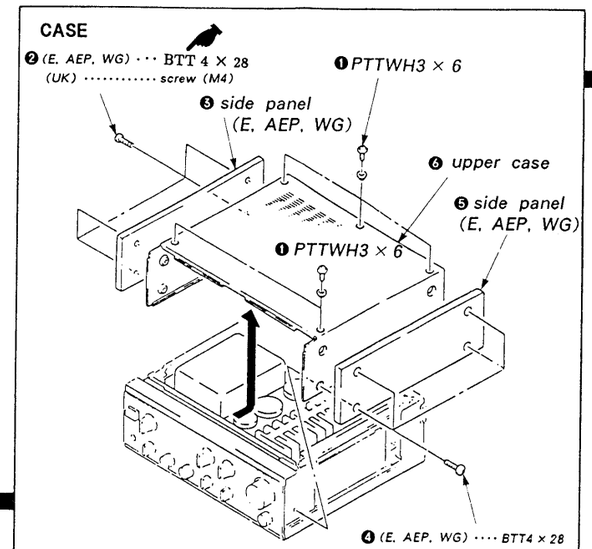
ELECTROLYTIC CAPACITOR HOLDER



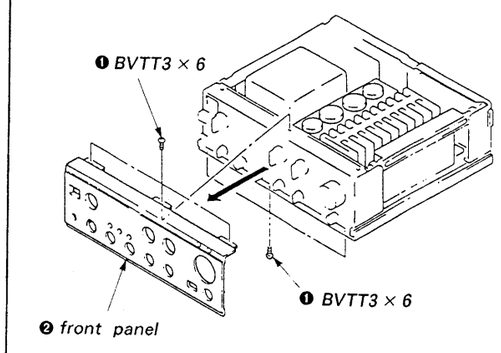
❸ Use a hexagonal wrench (3mm) to loosen the hexagonal bolts.

Note : Do not forget to re – attach the bolts when re – attaching the holder.

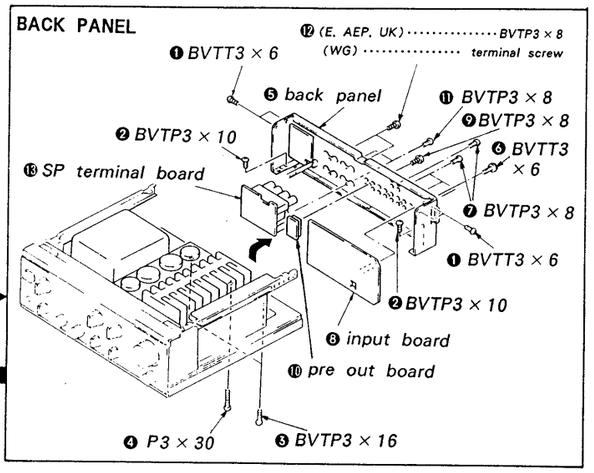
CASE


❷ (E, AEP, WG) ··· BTT 4 × 28
(UK) ····· screw (M4)
❶ PTTWH3 × 6
❸ side panel (E, AEP, WG)
❻ upper case
❺ side panel (E, AEP, WG)
❶ PTTWH3 × 6
❹ (E, AEP, WG) ···· BTT4 × 28
(UK) ····· screw (M4)

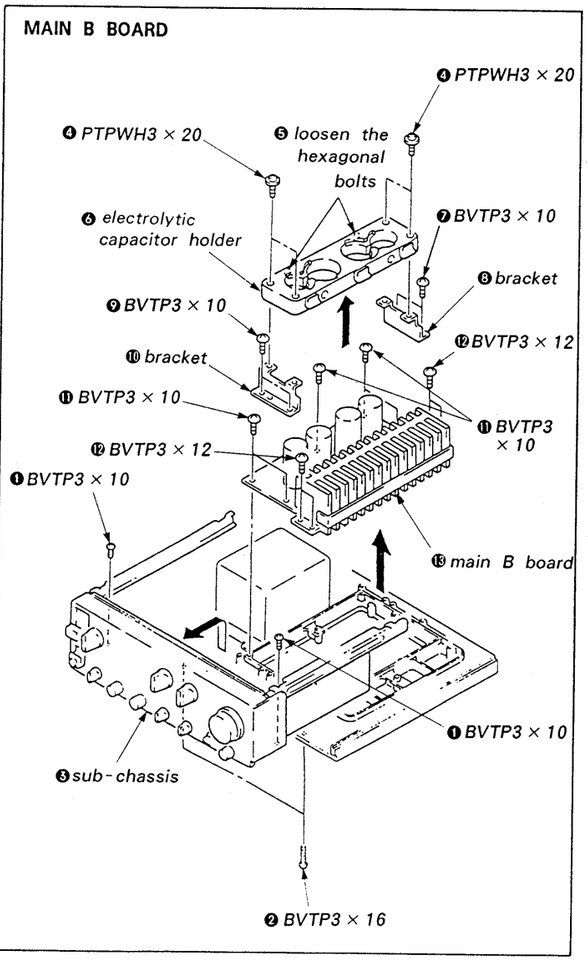
FRONT PANEL



BACK PANEL

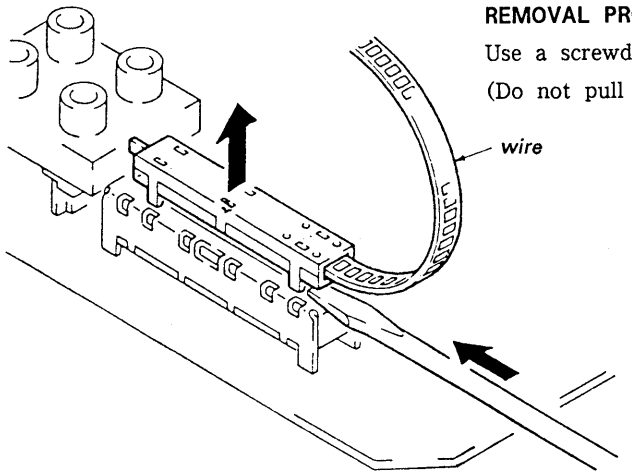

❶ BVTT3 × 6
⓬ (E, AEP, UK) ····· BVTP3 × 8
(WG) ····· terminal screw
❺ back panel
⓫ BVTP3 × 8
❾ BVTP3 × 8
❷ BVTP3 × 10
❻ BVTT3 × 6
⓭ SP terminal board
❼ BVTP3 × 8
❶ BVTT3 × 6
❷ BVTP3 × 10
❽ input board
⓾ pre out board
❹ P3 × 30
❺ BVTP3 × 16

MAIN B BOARD



REVISED

SECTION 3 REMOVAL SWITCH BLOCK

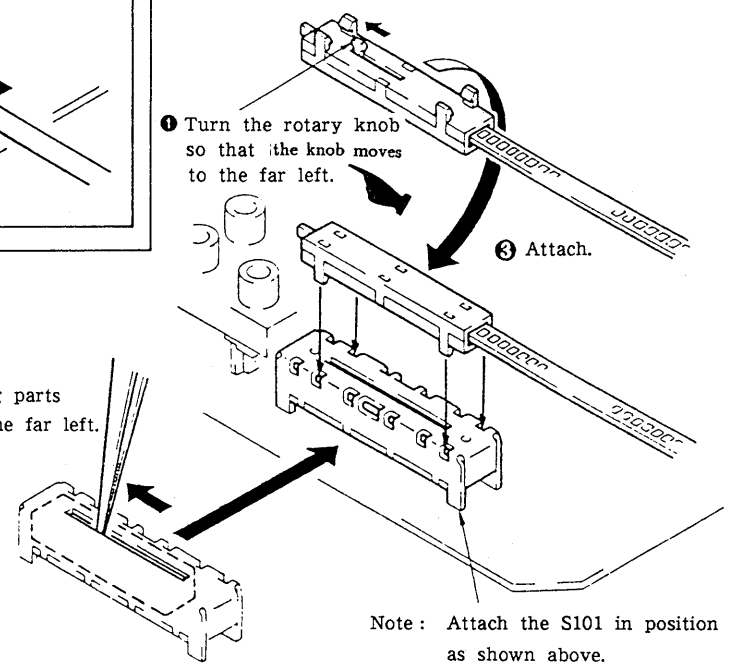


REMOVAL PROCEDURE

Use a screwdriver as shown in the illustration to the left to remove. (Do not pull on the wire as doing so may result in damage.)

ATTACHMENT PROCEDURE

Follow the numbered procedures shown to the right to attach.


❶ Turn the rotary knob so that the knob moves to the far left.
❷ Position the sliding parts of the switch to the far left.
❸ Attach.

Note : Attach the S101 in position as shown above.

SECTION 4
ELECTRICAL ADJUSTMENTS

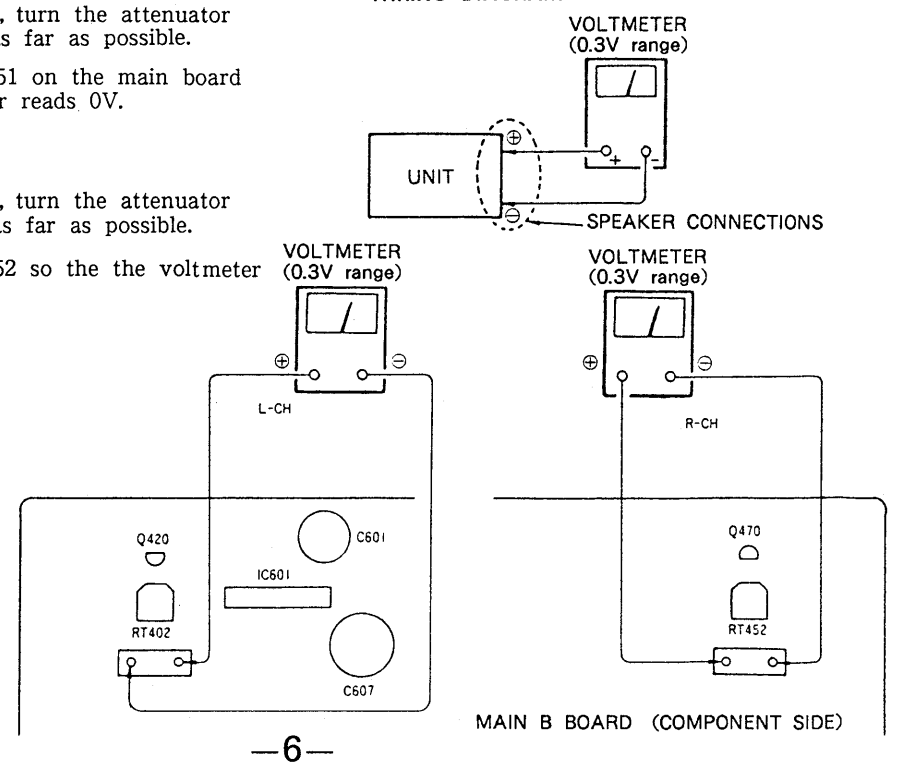
OFFSET ADJUSTMENT

1. With no signal input, turn the attenuator counter – clockwise as far as possible.
2. Adjust RT401 and 451 on the main board so that the voltmeter reads 0V.

BIAS ADJUSTMENT

1. With no signal input, turn the attenuator counter – clockwise as far as possible.
2. Adjust RT402 and 452 so the the voltmeter reads 15mV.

WIRING DIAGRAM :

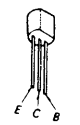


SECTION 5
DIAGRAMS

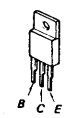
4-1. SEMICONDUCTOR LEAD LAYOUTS

μ PC1237HA

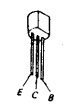
2SA733-K
2SA733-Q
2SC945-P
2SC1841-PA



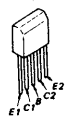
2SA985-A
2SA1383
2SC2275-A
2SC3514



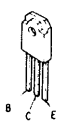
2SA988-F
2SD666-B



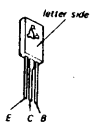
2SA995



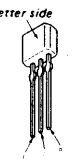
2SA1186



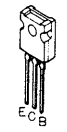
2SA1407
2SB731
2SC2837



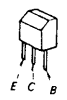
2SC2785-HFE



2SC3423

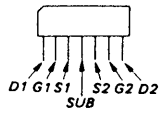


2SD774-3

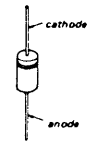


2SK246-GR2

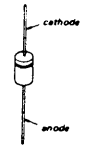
2SK389-GR



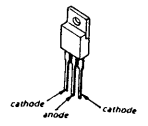
10E2N
HZ2CLL
US1060M



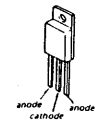
30DF2



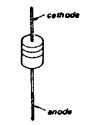
CTU-22R



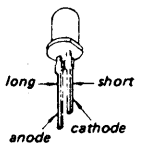
CTU-22S



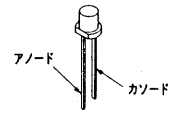
HZS6B1L
HZS6C3L
HZS9B2L



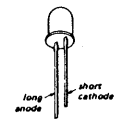
SEL1810A



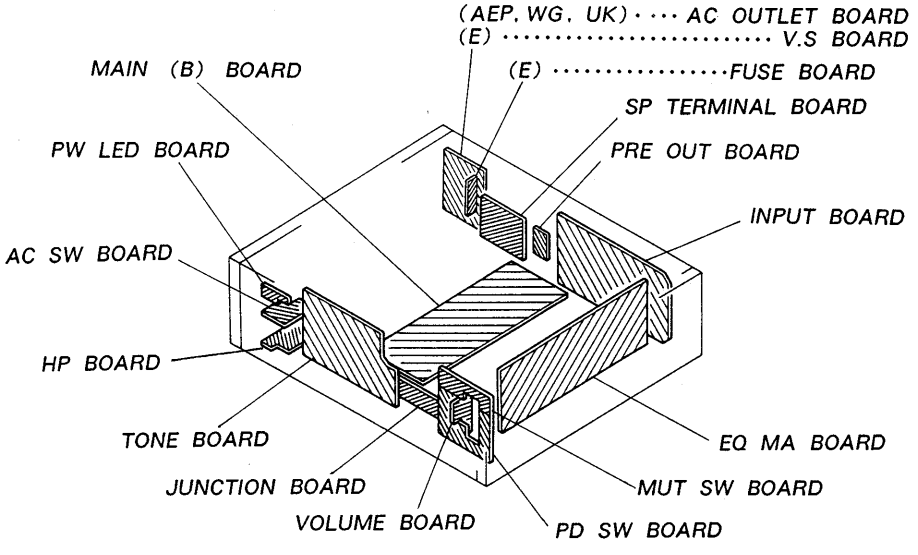
SEL2213C



SEL2510C



• **CIRCUIT BOARDS LOCATION**

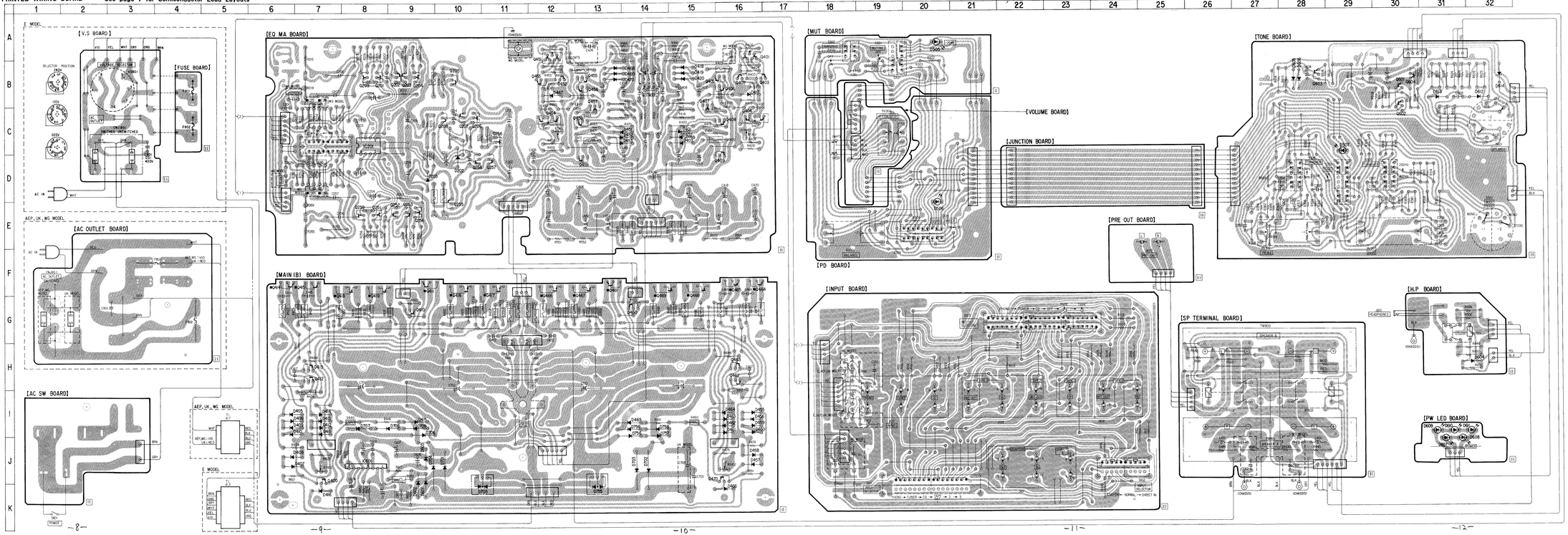


4-2. PRINTED WIRING BOARD

· See page 7 for Semiconductor Lead Layouts

· Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D202	D-10	D758	I-14
D203	D-9	D759	I-14
D401	C-15		
D402	C-15	IC201	C-8
D403	C-15	IC601	J-8
D405	I-6		
D406	I-6	Q201	B-8
D407	J-6	Q202	B-9
D408	J-6	Q203	B-9
D409	I-6	Q204	B-9
D410	J-6	Q205	B-10
D411	J-7	Q206	C-10
D412	I-7	Q207	C-10
D413	I-7	Q208	C-10
D414	I-7	Q209	B-8
D415	I-9	Q251	E-8
D416	K-7	Q252	E-9
D417	B-16	Q253	E-9
D418	B-15	Q254	E-9
D419	B-15	Q255	E-10
D420	B-15	Q256	C-11
D451	C-13	Q257	D-11
D452	C-13	Q258	D-10
D453	C-13	Q259	E-8
D455	I-16	Q401	A-16
D456	I-16	Q402	B-16
D457	I-16	Q403	B-16
D458	J-16	Q404	C-16
D459	I-16	Q405	B-15
D460	I-16	Q406	B-16
D461	I-16	Q407	B-15
D462	I-16	Q408	C-16
D463	I-16	Q409	D-16
D464	I-16	Q410	G-9
D465	I-14	Q411	F-9
D466	K-16	Q412	H-7
D467	B-12	Q413	H-7
D468	B-13	Q414	F-6
D469	B-13	Q415	F-7
D470	B-13	Q416	F-10
D505	A-20	Q417	F-11
D506	E-20	Q418	F-8
D507	C-29	Q419	F-8
D601	K-9	Q420	K-7
D602	K-9	Q451	A-12
D603	J-9	Q452	B-12
D604	H-32	Q453	B-12
D605	B-28	Q454	C-12
D606	B-27	Q455	B-13
D607	J-31	Q456	B-13
D608	J-31	Q457	C-13
D609	I-31	Q458	C-13
D610	I-31	Q459	D-13
D611	I-31	Q460	G-14
D612	B-32	Q461	F-13
D613	B-32	Q462	H-16
D614	B-32	Q463	H-16
D701	J-10	Q464	F-16
D702	J-14	Q465	F-16
D703	J-14	Q466	F-12
D704	J-9	Q467	F-13
D705	K-10	Q468	F-15
D706	J-9	Q469	F-14
D707	I-8	Q470	J-16
D708	I-8	Q601	B-30
D709	I-9	Q602	B-30
D755	K-13	Q603	B-28
D756	I-14	Q604	B-30
D757	I-14		



Note on Schematic Diagram :

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- B+ : B+ Line
- B− : B− Line
- % : indicates tolerance.
- Components for right channel have same values as for left channel.
- : nonflammable resistor.
- : fusible resistor.
- : adjustment for repair.
- Voltage is dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10M Ω/V) Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : PHONO
- WG : West Germany model

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note on Printed Wiring Boards :

- o— : parts extracted from the component side.
- —■ : parts mounted on the conductor side.
- WG : West Germany model

SECTION 6
EXPLODED VIEWS

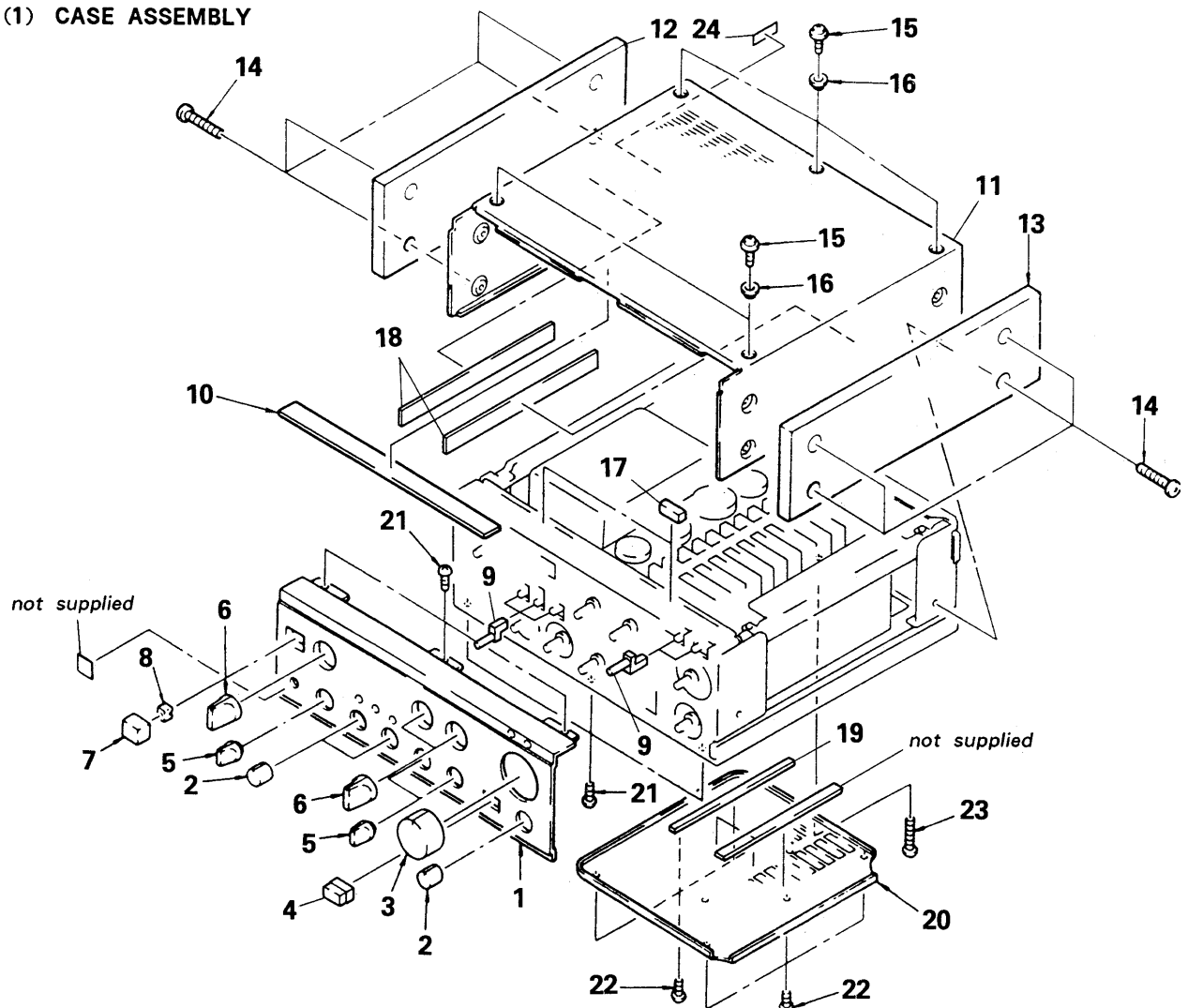
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

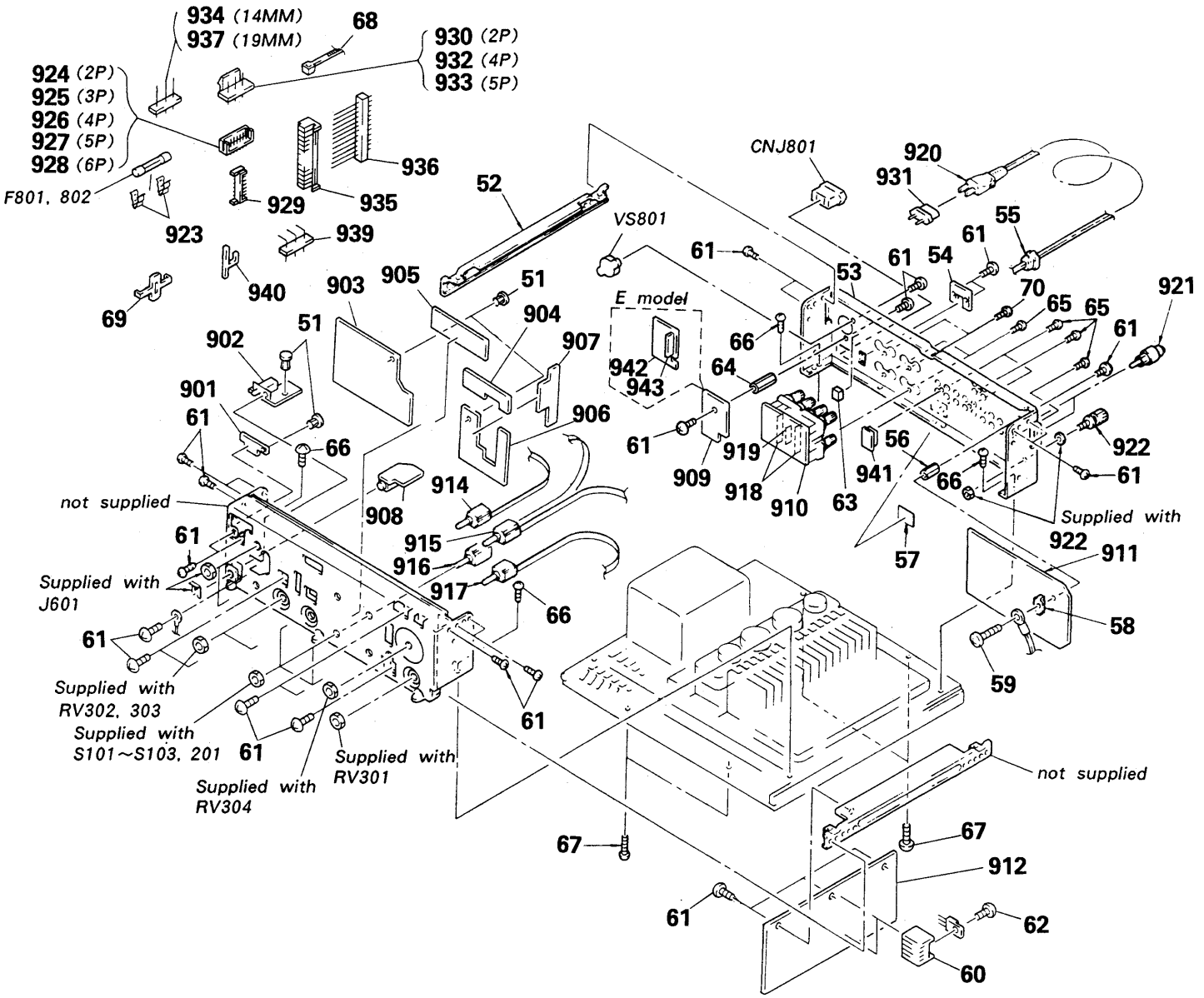
- WG : West Germany model

(1) CASE ASSEMBLY



No.	Part No.	Description	Remarks
1	A-4317-911-A	(AE,WG,UK)...PANEL ASSY, FRONT	
	A-4317-915-A	(E).....PANEL ASSY, FRONT	
2	4-923-871-01	KNOB (ROUND-22)(BASS/TREBLE/BALANCE)	
3	4-923-870-01	KNOB (ROUND-55)(ATTENUATOR)	
4	4-917-460-21	KNOB (SOURCE DIRECT)	
5	4-923-869-01	KNOB (FLAT-22) (MODE/REC OUT SELECTOR/CARTRIDGE LOAD)	
6	4-923-868-01	KNOB (FLAT-32)(INPUT SELECTOR)	
7	4-908-856-01	KNOB, SQUARE (POWER)	
8	4-864-307-00	RING	
9	4-923-879-01	BUTTON (DIA.4) (TURNOVER/TONE/MUTING/SUBSONIC)	
10	*4-916-782-01	DAMPER	
11	4-908-868-01	CASE	
12	X-4885-939-1	(AEP,E)...PLATE (LEFT) ASSY, SIDE	
	X-4885-951-1	(WG).....PLATE (LEFT) ASSY, SIDE	
13	X-4885-940-1	(AEP,E)...PLATE (RIGHT) ASSY, SIDE	
	X-4885-952-1	(WG).....PLATE (RIGHT) ASSY, SIDE	
14	4-847-802-00	(UK).....SCREW	
	4-885-979-21	(AEP,WG,E)...SCREW (4X28)	
15	4-886-821-01	SCREW, S TIGHT, +PTTWH 3X6	
16	3-576-298-11	ESCUTCHEON	
17	*4-908-872-01	CUSHION	
18	*4-916-782-01	(UK)...DAMPER	
19	*4-916-782-11	DAMPER	
20	*4-921-428-01	PLATE, BOTTOM	
21	7-682-547-09	SCREW +B 3X6	
22	7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT	
23	7-685-153-19	SCREW +P 3X30 TYPE2 SLIT	
24	*3-703-079-21	(UK)...LABEL, CAUTION (BACK)	

(2) FRONT CHASSIS, BACK PANEL ASSEMBLIES

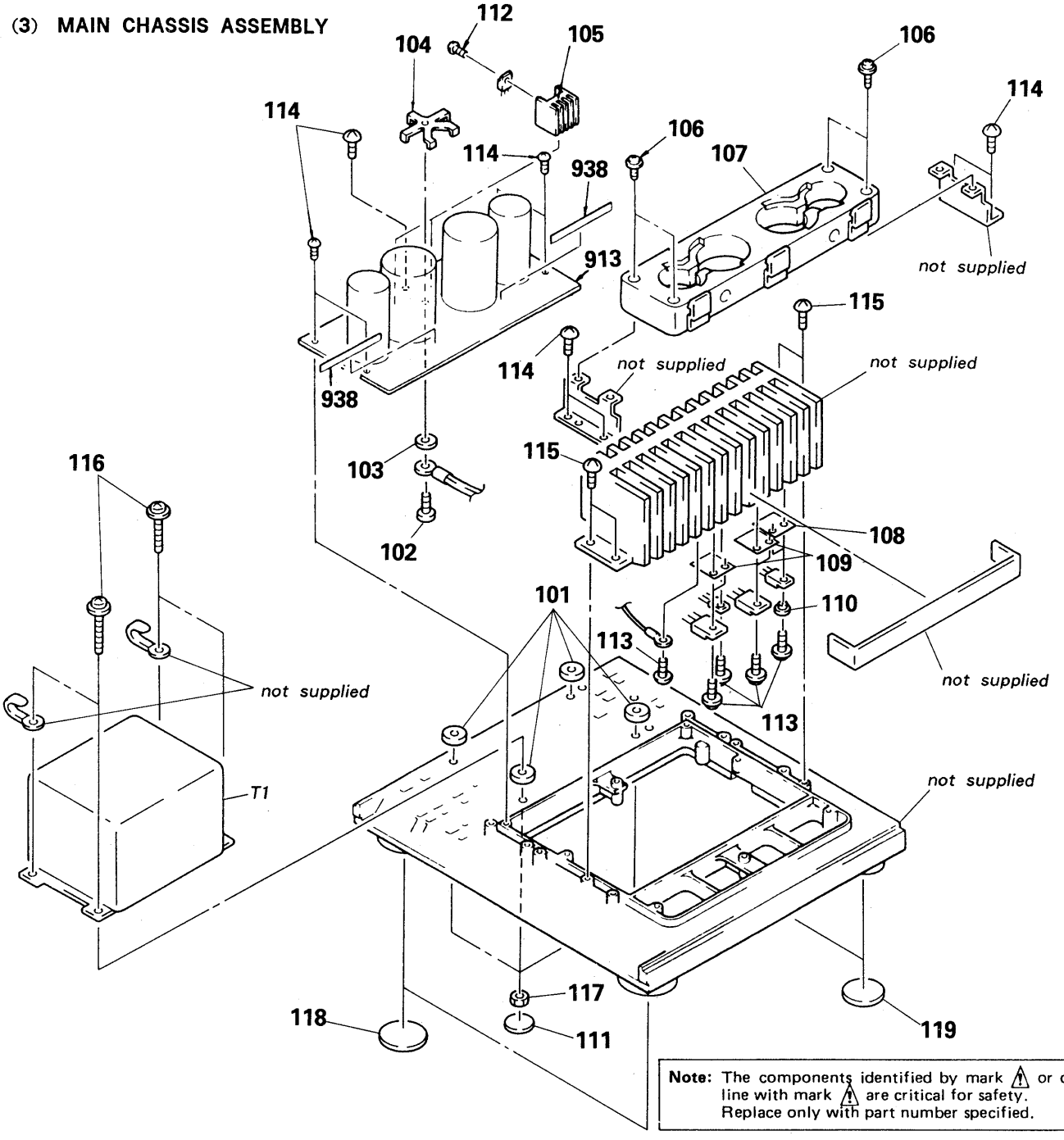


No.	Part No.	Description	Remarks
51	4-812-134-00	RIVET NYLON, 3.5	
52	*4-908-861-31	BRACKET, EQ	
53	*4-923-842-11	(AEP)...PANEL, BACK	
	*4-923-842-21	(WG)....PANEL, BACK	
	*4-923-842-31	(UK)....PANEL, BACK	
	*4-923-842-41	(E).....PANEL, BACK	
54	*4-923-873-01	BRACKET, CORD STOPPER	
55	⚠.2-352-626-11	(AEP,WG,UK)....BUSHING, CORD	
	⚠.*3-703-244-00	(E).....BUSHING (2104), CORD	
56	*2-280-622-51	SUPPORT (M3), HEXAGON	
57	*4-929-251-11	(AEP)....LABEL, MODEL NUMBER	
	*4-929-252-01	(UK).....LABEL, MODEL NUMBER	
	*4-929-253-01	(E)......LABEL, MODEL NUMBER	
	*4-929-254-01	(WG).....LABEL, MODEL NUMBER	
58	*4-835-639-00	PLATE, GROUND	
59	7-682-149-15	SCREW, TR	
60	*4-921-402-01	HEAT SINK	
61	7-682-547-09	SCREW +B 3X6	
62	7-682-548-09	SCREW +B 3X8	
63	*4-916-707-01	(E).....CUSHION	
64	*2-280-622-51	(AEP,WG)...SUPPORT (M3), HEXAGON	
	*2-280-622-61	(UK).....SUPPORT (M3X20), HEXAGON	
65	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
66	7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT	
67	7-685-650-79	SCREW +BVTP 3X16 TYPE2 SLIT	
68	3-655-653-21	BAND (TAITON), BINDING	
69	*4-923-814-01	(AEP,WG,UK)...PLATE, CONNECTION	
70	3-704-242-11	(WG)......SCREW, TERMINAL, +PVTP CLAW	
	7-685-646-79	(AEP,UK,E)...SCREW +BVTP 3X8 TYPE2 N-2	
901	*1-628-959-11	PC BOARD, PW LED	
902	*1-628-963-11	PC BOARD, AC SW	
903	*A-4410-864-A	MOUNTED PCB, TONE	
904	*1-628-954-11	PC BOARD, MUT	
905	*1-628-957-11	PC BOARD, JUNCTION	
906	*1-628-955-11	PC BOARD, PD	
907	*1-628-953-11	PC BOARD, VOLUME	
908	*1-628-958-11	PC BOARD, HP	
909	*1-626-600-11	(AEP,WG,UK)...PC BOARD, AC OUTLET	
910	*1-628-956-11	PC BOARD, SP TERMINAL	
911	*1-628-951-11	PC BOARD, INPUT	
912	*A-4333-136-A	(WG).....MOUNTED PCB, EQ MA	
	*A-4333-176-A	(AEP,E)...MOUNTED PCB, EQ MA	
	*A-4333-669-A	(UK).....MOUNTED PCB, EQ MA	

No.	Part No.	Description	Remarks
914	1-571-337-11	SWITCH, ROTARY SLIDE	
915	1-571-769-11	SWITCH, ROTARY SLIDE (REMOTE)	
916	1-571-770-11	SWITCH, ROTARY SLIDE (REMOTE)	
917	1-571-771-11	SWITCH, ROTARY SLIDE (REMOTE)	
918	*1-560-242-11	BUS BAR 3P	
919	*1-560-242-61	BUS BAR 2P	
920	⚠.1-555-386-00	(E).....CORD, POWER	
	⚠.1-559-271-11	(AEP,WG)...CORD, POWER	
	⚠.1-559-272-11	(UK).....CORD, POWER	
921	1-506-113-00	SHORT PLUG	
922	1-535-691-11	TERMINAL	
923	1-533-183-11	HOLDER, FUSE	
924	*1-564-505-11	PLUG, CONNECTOR 2P	
925	*1-564-506-11	PLUG, CONNECTOR 3P	
926	*1-564-507-11	PLUG, CONNECTOR 4P	
927	*1-564-508-11	PLUG, CONNECTOR 5P	
928	*1-564-509-11	PLUG, CONNECTOR 6P	
929	*1-564-521-11	PLUG, CONNECTOR 6P	
930	*1-564-321-00	PIN, CONNECTOR 2P	
931	⚠.1-526-565-00	(E).....AC PLUG ADAPTOR	
932	*1-564-241-00	PIN, CONNECTOR 4P	
933	*1-564-242-00	PIN, CONNECTOR 5P	
934	*1-535-136-00	(E)...BASE POST 14MM (10MM PITCH) 3P	
935	*1-561-652-00	SOCKET, CONNECTOR 12P	
936	*1-560-533-00	PIN, CONNECTOR 12P	
937	*1-535-140-00	(AEP,WG,UK)...BASE POST 19MM (10MM PITCH) 3P	
938	*1-560-242-31	BUS BAR 5P	
939	*1-560-595-21	(AEP,WG,UK)...TERMINAL (WITH BASE)	
940	1-535-476-11	(AEP,WG,UK)...TERMINAL	
941	*1-631-317-11	PC BOARD, PRE OUT	
942	*1-619-928-11	PC BOARD, V.S	
943	*1-619-929-11	PC BOARD, FUSE (E)	
CNJ801⚠	1-526-751-00	(UK).....OUTLET, AC	
CNJ801⚠	1-526-794-11	(AEP,WG)...OUTLET, AC	
CNJ801⚠	1-526-883-00	(E).....OUTLET, AC	
F801	⚠.1-532-237-00	FUSE, TIME-LAG (T3.15A)	
F802	⚠.1-532-237-00	(E).....FUSE, TIME-LAG (T3.15A)	
F802	⚠.1-532-286-00	(AEP,WG,UK)...FUSE, TIME-LAG (T2.5A)	
VS801⚠	1-526-576-51	(E).....SELECTOR, POWER VOLTAGE (VOLTAGE SELECTOR)	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(3) MAIN CHASSIS ASSEMBLY



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

No.	Part No.	Description	Remarks
101	4-923-848-01	WASHER (B.S)	
102	7-682-149-15	SCREW, TR	
103	4-309-378-00	WASHER	
104	*4-916-791-01	PLATE, GROUND, 5P	
105	*4-921-402-01	HEAT SINK	
106	4-921-437-01	SCREW (M3X20), TAPPING	
107	*X-4885-928-3	HOLDER (A) ASSY	
108	4-901-949-01	SHEET, INSULATING	
109	4-908-847-01	SHEET, INSULATING	
110	2-371-561-00	BUSHING (P), INSULATING	
111	*4-908-892-01	SPACER	
112	7-682-548-09	SCREW +B 3X8	
113	7-682-549-01	SCREW +B 3X10	
114	7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT	
115	7-685-648-79	SCREW +BVTP 3X12 TYPE2 SLIT	
116	7-682-669-09	SCREW +PSW 4X35	
117	7-684-024-04	N 4, TYPE 2	
118	*4-908-888-01	(UK).....FOOT, TUNING	
	*4-923-850-01	(AEP,WG,E)...FOOT (DIA. 46)	
119	*4-908-887-01	(UK).....FOOT, TUNING	
	*4-923-849-01	(AEP,WG,E)...FOOT (DIA. 38)	
913	*A-4333-137-A	(WG).....MOUNTED PCB, MAIN (B)	
	*A-4333-668-A	(AEP,E)...MOUNTED PCB, MAIN (B)	
	*A-4333-670-A	(UK).....MOUNTED PCB, MAIN (B)	
T1	⚠1-449-652-11	(AEP)...TRANSFORMER, POWER	
T1	⚠1-449-653-11	(WG)....TRANSFORMER, POWER	
T1	⚠1-449-654-11	(E).....TRANSFORMER, POWER	
T1	⚠1-449-655-11	(UK)....TRANSFORMER, POWER	

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- WG : West Germany model

Ref.No.	Part No.	Description
901	*1-628-959-11	PC BOARD, PW LED
902	*1-628-963-11	PC BOARD, AC SW
903	*A-4410-864-A	MOUNTED PCB, TONE
904	*1-628-954-11	PC BOARD, MUT
905	*1-628-957-11	PC BOARD, JUNCTION
906	*1-628-955-11	PC BOARD, PD
907	*1-628-953-11	PC BOARD, VOLUME
908	*1-628-958-11	PC BOARD, HP
909	*1-626-600-11	(AEP,WG,UK)...PC BOARD, AC OUTLET
910	*1-628-956-11	PC BOARD, SP TERMINAL
911	*1-628-951-11	PC BOARD, INPUT
912	*A-4333-136-A	(WG).....MOUNTED PCB, EQ MA
	*A-4333-176-A	(AEP,E)...MOUNTED PCB, EQ MA
	*A-4333-669-A	(UK).....MOUNTED PCB, EQ MA
913	*A-4333-137-A	(WG).....MOUNTED PCB, MAIN (B)
	*A-4333-668-A	(AEP,E)...MOUNTED PCB, MAIN (B)
	*A-4333-670-A	(UK).....MOUNTED PCB, MAIN (B)
914	1-571-337-11	SWITCH, ROTARY SLIDE
915	1-571-769-11	SWITCH, ROTARY SLIDE (REMOTE)
916	1-571-770-11	SWITCH, ROTARY SLIDE (REMOTE)
917	1-571-771-11	SWITCH, ROTARY SLIDE (REMOTE)
918	*1-560-242-11	BUS BAR 3P
919	*1-560-242-61	BUS BAR 2P
920	⚠1-555-386-00	(E).....CORD, POWER
	⚠1-559-271-11	(AEP,WG)...CORD, POWER
	⚠1-559-272-11	(UK).....CORD, POWER
921	1-506-113-00	SHORT PLUG
922	1-535-691-11	TERMINAL
923	1-533-183-11	HOLDER, FUSE
924	*1-564-505-11	PLUG, CONNECTOR 2P
925	*1-564-506-11	PLUG, CONNECTOR 3P
926	*1-564-507-11	PLUG, CONNECTOR 4P
927	*1-564-508-11	PLUG, CONNECTOR 5P
928	*1-564-509-11	PLUG, CONNECTOR 6P
929	*1-564-521-11	PLUG, CONNECTOR 6P
930	*1-564-321-00	PIN, CONNECTOR 2P
931	⚠1-526-565-00	(E).....AC PLUG ADAPTOR
932	*1-564-241-00	PIN, CONNECTOR 4P
933	*1-564-242-00	PIN, CONNECTOR 5P
934	*1-535-136-00	(E)...BASE POST 14MM (10MM PITCH) 3P
935	*1-561-652-00	SOCKET, CONNECTOR 12P
936	*1-560-533-00	PIN, CONNECTOR 12P
937	*1-535-140-00	(AEP,WG,UK)...BASE POST 19MM (10MM PITCH) 3P
938	*1-560-242-31	BUS BAR 5P
939	*1-560-595-21	(AEP,WG,UK)...TERMINAL (WITH BASE)
940	1-535-476-11	(AEP,WG,UK)...TERMINAL
941	*1-631-317-11	PC BOARD, PRE OUT
942	*1-619-928-11	PC BOARD, V.S
943	*1-619-929-11	PC BOARD, FUSE (E)
C101	1-162-282-31	(WG)...CERAMIC 100PF 5% 50V
C102	1-162-282-31	(WG)...CERAMIC 100PF 5% 50V
C151	1-162-282-31	(WG)...CERAMIC 100PF 5% 50V
C152	1-162-282-31	(WG)...CERAMIC 100PF 5% 50V
C201	1-107-163-00	(WG).....MICA 47PF 5% 500V
C201	1-130-469-00	(AEP,UK,E)...MYLAR 680PF 5% 50V
C202	1-136-250-11	FILM 0.001MF 5% 100V
C203	1-124-748-11	ELECT 22MF 20% 100V
C204	1-124-700-11	ELECT 330MF 20% 25V
C205	1-130-469-00	(AEP,UK,E)...MYLAR 680PF 5% 50V
C206	1-130-206-00	FILM 0.016MF 2% 630V
C207	1-129-723-00	FILM 0.056MF 2% 630V
C209	1-124-557-11	ELECT 1000MF 20% 25V
C211	1-123-333-00	ELECT 100MF 20% 25V
C212	1-123-377-00	ELECT 470MF 20% 63V
C214	1-123-381-00	ELECT 2.2MF 20% 63V
C215	1-130-471-00	(WG).....MYLAR 0.001MF 5% 50V
C216	1-130-471-00	(WG).....MYLAR 0.001MF 5% 50V
C251	1-107-163-00	(WG).....MICA 47PF 5% 500V
C251	1-130-469-00	(AEP,UK,E)...MYLAR 680PF 5% 50V
C252	1-136-250-11	FILM 0.001MF 5% 100V
C253	1-124-748-11	ELECT 22MF 20% 100V
C254	1-124-700-11	ELECT 330MF 20% 25V
C255	1-130-469-00	(AEP,UK,E)...MYLAR 680PF 5% 50V
C256	1-130-206-00	FILM 0.016MF 2% 630V
C257	1-129-723-00	FILM 0.056MF 2% 630V
C259	1-124-557-11	ELECT 1000MF 20% 25V
C262	1-123-377-00	ELECT 470MF 20% 63V
C264	1-123-381-00	ELECT 2.2MF 20% 63V
C265	1-130-471-00	(WG).....MYLAR 0.001MF 5% 50V
C266	1-130-471-00	(WG).....MYLAR 0.001MF 5% 50V
C301	1-136-167-00	FILM 0.15MF 5% 50V
C302	1-130-470-00	MYLAR 820PF 5% 50V
C303	1-130-470-00	MYLAR 820PF 5% 50V
C304	1-130-478-00	MYLAR 0.0039MF 5% 50V
C305	1-130-478-00	MYLAR 0.0039MF 5% 50V
C306	1-130-481-00	MYLAR 0.0068MF 5% 50V
C307	1-130-481-00	MYLAR 0.0068MF 5% 50V
C308	1-136-161-00	FILM 0.047MF 5% 50V
C309	1-136-161-00	FILM 0.047MF 5% 50V

REVISED

Ref.No.	Part No.	Description			
C351	1-136-167-00	FILM	0.15MF	5%	50V
C352	1-130-470-00	MYLAR	820PF	5%	50V
C353	1-130-470-00	MYLAR	820PF	5%	50V
C354	1-130-478-00	MYLAR	0.0039MF	5%	50V
C355	1-130-478-00	MYLAR	0.0039MF	5%	50V
C356	1-130-481-00	MYLAR	0.0068MF	5%	50V
C357	1-130-481-00	MYLAR	0.0068MF	5%	50V
C358	1-136-161-00	FILM	0.047MF	5%	50V
C359	1-136-161-00	FILM	0.047MF	5%	50V
C401	1-107-202-00	MICA	10PF	0.5PF	500V
C402	1-109-621-00	MICA	220PF	5%	500V
C403	1-123-380-00	ELECT	1MF	20%	100V
C404	1-107-048-00	(WG).....MICA	7PF	0.5PF	500V
C404	1-107-276-11	(AEP,UK,E)...MICA	3PF	0.5PF	500V
C405	1-124-918-11	ELECT	47MF	20%	63V
C406	1-124-918-11	ELECT	47MF	20%	63V
C408	1-124-748-11	ELECT	22MF	20%	100V
C409	1-130-317-00	FILM	0.068MF	5%	100V
C410	1-107-202-00	MICA	10PF	0.5PF	500V
C411	1-124-130-00	ELECT	100MF	20%	63V
C412	1-124-130-00	ELECT	100MF	20%	63V
C414	1-107-163-00	(AEP,UK,E)...MICA	47PF	5%	500V
C414	1-107-169-00	(WG).....MICA	100PF	5%	500V
C415	1-107-163-00	(AEP,UK,E)...MICA	47PF	5%	500V
C415	1-107-169-00	(WG).....MICA	100PF	5%	500V
C416	1-136-161-00	FILM	0.047MF	5%	50V
C417	1-136-161-00	FILM	0.047MF	5%	50V
C418	1-123-377-00	ELECT	470MF	20%	63V
C419	1-123-377-00	ELECT	470MF	20%	63V
C420	1-123-376-00	ELECT	330MF	20%	63V
C421	1-123-376-00	ELECT	330MF	20%	63V
C422	1-136-161-00	FILM	0.047MF	5%	50V
C423	1-107-163-00	(AEP,UK,E)...MICA	47PF	5%	500V
C451	1-107-202-00	MICA	10PF	0.5PF	500V
C452	1-109-621-00	MICA	220PF	5%	500V
C453	1-123-380-00	ELECT	1MF	20%	100V
C454	1-107-048-00	(WG).....MICA	7PF	0.5PF	500V
C454	1-107-276-11	(AEP,UK,E)...MICA	3PF	0.5PF	500V
C455	1-124-918-11	ELECT	47MF	20%	63V
C456	1-124-918-11	ELECT	47MF	20%	63V
C458	1-124-748-11	ELECT	22MF	20%	100V
C459	1-130-317-00	FILM	0.068MF	5%	100V
C460	1-107-202-00	MICA	10PF	0.5PF	500V
C461	1-124-130-00	ELECT	100MF	20%	63V
C462	1-124-130-00	ELECT	100MF	20%	63V
C464	1-107-163-00	MICA	47PF	5%	500V
C464	1-107-169-00	(WG).....MICA	100PF	5%	500V
C465	1-107-169-00	(WG).....MICA	100PF	5%	500V
C465	1-107-163-00	MICA	47PF	5%	500V
C466	1-136-161-00	FILM	0.047MF	5%	50V
C467	1-136-161-00	FILM	0.047MF	5%	50V
C468	1-123-377-00	ELECT	470MF	20%	63V
C469	1-123-377-00	ELECT	470MF	20%	63V
C470	1-123-376-00	ELECT	330MF	20%	63V
C471	1-123-376-00	ELECT	330MF	20%	63V

Ref.No.	Part No.	Description			
C472	1-136-161-00	FILM	0.047MF	5%	50V
C473	1-107-169-00	(WG)...MICA	100PF	5%	500V
C474	1-130-469-00	(WG)...MYLAR	680PF	5%	50V
C601	1-123-334-00	ELECT	220MF	20%	25V
C602	1-130-471-00	MYLAR	0.001MF	5%	50V
C603	1-136-157-00	FILM	0.022MF	5%	50V
C604	1-123-332-00	ELECT	47MF	20%	25V
C605	1-124-918-11	ELECT	47MF	20%	63V
C606	1-123-380-00	ELECT	1MF	20%	100V
C607	1-123-376-00	ELECT	330MF	20%	63V
C608	1-123-369-00	ELECT	4.7MF	20%	50V
C609	1-106-343-00	MYLAR	0.001MF	10%	100V
C610A	1-123-380-00	ELECT	1MF	20%	63V
C610	1-130-480-00	(WG)...MYLAR	0.0056MF	5%	50V
C611	1-123-356-00	ELECT	10MF	20%	25V
C612	1-106-343-00	(WG)...MYLAR	0.001MF	10%	100V
C660	1-130-480-00	(WG)...MYLAR	0.0056MF	5%	50V
C662	1-106-343-00	(WG)...MYLAR	0.001MF	10%	100V
C701	1-125-604-11	CAP, ELECT	4700MF		63V
C702	1-125-381-00	CAP, ELECT	12000MF		63V
C705	1-136-601-11	(AEP,WG,E)...FILM	0.01MF	10%	630V
C705	1-136-905-11	(UK).....FILM	6.8MF	10%	160V
C751	1-125-604-11	CAP, ELECT	4700MF		63V
C752	1-125-381-00	CAP, ELECT	12000MF		63V
C801	1-161-741-00	CERAMIC	0.001MF	10%	400V
CNJ801⚠1	1-526-751-00	(UK).....OUTLET, AC			
CNJ801⚠1	1-526-794-11	(AEP,WG)...OUTLET, AC			
CNJ801⚠1	1-526-883-00	(E).....OUTLET, AC			
D202	8-719-933-36	ZENER DIODE HZS6B1L			
D203	8-719-200-77	DIODE 10E2N			
D401	8-719-933-41	ZENER DIODE HZS6C3L			
D402	8-719-000-26	DIODE US1060M			
D403	8-719-000-26	DIODE US1060M			
D405	8-719-000-26	DIODE US1060M			
D406	8-719-000-26	DIODE US1060M			
D407	8-719-000-26	DIODE US1060M			
D408	8-719-000-26	DIODE US1060M			
D409	8-719-000-26	DIODE US1060M			
D410	8-719-000-26	DIODE US1060M			
D411	8-719-000-26	DIODE US1060M			
D412	8-719-000-26	DIODE US1060M			
D413	8-719-000-26	DIODE US1060M			
D414	8-719-000-26	DIODE US1060M			
D415	8-719-000-26	DIODE US1060M			
D416	8-719-000-26	DIODE US1060M			
D417	8-719-921-13	ZENER DIODE HZ2CLL			
D418	8-719-000-26	DIODE US1060M			
D419	8-719-000-26	DIODE US1060M			
D420	8-719-000-26	DIODE US1060M			
D451	8-719-933-41	ZENER DIODE HZS6C3L			
D452	8-719-000-26	DIODE US1060M			
D453	8-719-000-26	DIODE US1060M			
D455	8-719-000-26	DIODE US1060M			
D456	8-719-000-26	DIODE US1060M			
D457	8-719-000-26	DIODE US1060M			

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description
D458	8-719-000-26	DIODE US1060M
D459	8-719-000-26	DIODE US1060M
D460	8-719-000-26	DIODE US1060M
D461	8-719-000-26	DIODE US1060M
D462	8-719-000-26	DIODE US1060M
D463	8-719-000-26	DIODE US1060M
D464	8-719-000-26	DIODE US1060M
D465	8-719-000-26	DIODE US1060M
D466	8-719-000-26	DIODE US1060M
D467	8-719-921-13	ZENER DIODE HZ2CLL
D468	8-719-000-26	DIODE US1060M
D469	8-719-000-26	DIODE US1060M
D470	8-719-000-26	DIODE US1060M
D505	8-719-302-07	LED SEL1810A (MUTE)
D506	8-719-302-07	LED SEL1810A (SOURCE DIRECT)
D507	8-719-302-07	LED SEL1810A (TONE)
D601	8-719-200-77	DIODE 10E2N
D602	8-719-200-77	DIODE 10E2N
D603	8-719-200-77	DIODE 10E2N
D604	8-719-000-26	DIODE US1060M
D605	8-719-000-26	DIODE US1060M
D606	8-719-000-26	DIODE US1060M
D607	8-719-300-82	LED SEL2213C (POWER (RED))
D608	8-719-300-82	LED SEL2213C (POWER (RED))
D609	8-719-303-00	LED SEL2510C (POWER (GREEN))
D610	8-719-303-00	LED SEL2510C (POWER (GREEN))
D611	8-719-303-00	LED SEL2510C (POWER (GREEN))
D612	8-719-000-26	DIODE US1060M
D613	8-719-000-26	DIODE US1060M
D614	8-719-933-57	ZENER DIODE HZS9B2L
D701	8-719-230-02	DIODE 30DF2
D702	8-719-230-02	DIODE 30DF2
D703	8-719-230-02	DIODE 30DF2
D704	8-719-230-02	DIODE 30DF2
D705	8-719-300-27	DIODE CTU-22S
D706	8-719-200-77	DIODE 10E2N
D707	8-719-200-77	DIODE 10E2N
D708	8-719-200-77	DIODE 10E2N
D709	8-719-200-77	DIODE 10E2N
D755	8-719-300-25	DIODE CTU-22R
D756	8-719-200-77	DIODE 10E2N
D757	8-719-200-77	DIODE 10E2N
D758	8-719-200-77	DIODE 10E2N
D759	8-719-200-77	DIODE 10E2N
F801	⚠1-532-237-00	FUSE, TIME-LAG (T3.15A)
F802	⚠1-532-237-00	(E).....FUSE, TIME-LAG (T3.15A)
F802	⚠1-532-286-00	(AEP,WG,UK)...FUSE, TIME-LAG (T2.5A)
IC201	8-759-602-01	(WG).....IC M5220P
IC201	8-759-982-03	(AEP,UK,E)...IC RC5532DD
IC601	8-759-111-68	IC UPC1237HA
J101	1-507-831-00	JACK, PIN 6P
J102	1-507-831-31	JACK, PIN 6P (INPUT)
J103	1-507-831-00	JACK, PIN 6P
J104	1-507-831-00	JACK, PIN 6P
J601	1-507-863-51	JACK, LARGE TYPE (HEADPHONES)
J602	1-507-852-00	JACK, PIN 2P (PRE OUT)

Ref.No.	Part No.	Description
L101	1-413-101-00	(WG)...COIL, AIR-CORE
L102	1-413-101-00	(WG)...COIL, AIR-CORE
L151	1-413-101-00	(WG)...COIL, AIR-CORE
L152	1-413-101-00	(WG)...COIL, AIR-CORE
L401	*1-422-009-13	COIL, AIR-CORE
L402	1-422-261-11	COIL, AIR-CORE
L403	1-422-261-11	COIL, AIR-CORE
L451	*1-422-009-13	COIL, AIR-CORE
L452	1-422-261-11	COIL, AIR-CORE
L453	1-422-261-11	COIL, AIR-CORE
Q201	8-729-217-04	TRANSISTOR 2SK170-V
Q202	8-729-366-61	TRANSISTOR 2SD666-B
Q203	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q204	8-729-201-56	TRANSISTOR 2SK246GR2
Q205	8-729-127-53	TRANSISTOR 2SC2275-P
Q206	8-729-201-56	TRANSISTOR 2SK246GR2
Q207	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q208	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q209	8-729-217-04	TRANSISTOR 2SK170-V
Q251	8-729-217-04	TRANSISTOR 2SK170-V
Q252	8-729-366-61	TRANSISTOR 2SD666-B
Q253	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q254	8-729-201-56	TRANSISTOR 2SK246GR2
Q255	8-729-190-53	TRANSISTOR 2SA985A-P
Q256	8-729-201-56	TRANSISTOR 2SK246GR2
Q257	8-729-173-38	TRANSISTOR 2SA733-K
Q258	8-729-173-38	TRANSISTOR 2SA733-K
Q259	8-729-217-04	TRANSISTOR 2SK170-V
Q401	8-729-203-21	TRANSISTOR 2SK389-GR
Q402	8-729-108-05	TRANSISTOR 2SA1841-PA
Q403	8-729-108-05	TRANSISTOR 2SA1841-PA
Q404	8-729-699-51	TRANSISTOR 2SA995-F
Q405	8-729-802-71	TRANSISTOR 2SA1407-D
Q406	8-729-104-91	TRANSISTOR 2SA1383
Q407	8-729-201-56	TRANSISTOR 2SK246GR2
Q408	8-729-104-18	TRANSISTOR 2SC3514-Q
Q409	8-729-104-18	TRANSISTOR 2SC3514-Q
Q410	8-729-173-13	TRANSISTOR 2SB731-F
Q411	8-729-203-45	TRANSISTOR 2SC3423-O
Q412	8-729-104-18	TRANSISTOR 2SC3514-Q
Q413	8-729-104-91	TRANSISTOR 2SA1383-Q
Q414	8-729-107-53	TRANSISTOR 2SC2275A-P
Q415	8-729-190-53	TRANSISTOR 2SA985A-P
Q416	8-729-383-73	TRANSISTOR 2SC2837-Y
Q417	8-729-383-73	TRANSISTOR 2SC2837-Y
Q418	8-729-318-63	TRANSISTOR 2SA1186-Y
Q419	8-729-318-63	TRANSISTOR 2SA1186-Y
Q420	8-729-108-14	TRANSISTOR 2SA988-F
Q451	8-729-203-21	TRANSISTOR 2SK389-GR
Q452	8-729-108-05	TRANSISTOR 2SA1841-PA
Q453	8-729-108-05	TRANSISTOR 2SA1841-PA
Q454	8-729-699-51	TRANSISTOR 2SA995-F
Q455	8-729-802-71	TRANSISTOR 2SA1407-D
Q456	8-729-104-91	TRANSISTOR 2SA1383
Q457	8-729-201-56	TRANSISTOR 2SK246GR2
Q458	8-729-104-18	TRANSISTOR 2SC3514-Q
Q459	8-729-104-18	TRANSISTOR 2SC3514-Q
Q460	8-729-173-13	TRANSISTOR 2SB731-F

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description
Q461	8-729-203-45	TRANSISTOR 2SC3423-O
Q462	8-729-104-18	TRANSISTOR 2SC3514-Q
Q463	8-729-104-91	TRANSISTOR 2SA1383-Q
Q464	8-729-107-53	TRANSISTOR 2SC2275A-P
Q465	8-729-190-53	TRANSISTOR 2SA985A-P
Q466	8-729-383-73	TRANSISTOR 2SC2837-Y
Q467	8-729-383-73	TRANSISTOR 2SC2837-Y
Q468	8-729-318-63	TRANSISTOR 2SA1186-Y
Q469	8-729-318-63	TRANSISTOR 2SA1186-Y
Q470	8-729-108-14	TRANSISTOR 2SA988-F
Q601	8-729-173-36	TRANSISTOR 2SA733-Q
Q602	8-729-173-36	TRANSISTOR 2SA733-Q
Q603	8-729-177-42	TRANSISTOR 2SD774-3
Q604	8-729-194-57	TRANSISTOR 2SC945-P
R101	1-246-545-00	CARBON 1M 5% 1/4W
R102	1-246-545-00	CARBON 1M 5% 1/4W
R103	1-246-545-00	CARBON 1M 5% 1/4W
R104	1-246-545-00	CARBON 1M 5% 1/4W
R105	1-246-545-00	CARBON 1M 5% 1/4W
R106	1-246-545-00	CARBON 1M 5% 1/4W
R107	1-247-713-11	CARBON 1K 5% 1/4W
R108	1-247-713-11	CARBON 1K 5% 1/4W
R109	1-247-713-11	CARBON 1K 5% 1/4W
R110	1-247-713-11	(WG).....CARBON 1K 5% 1/4W
R110	1-247-739-11	(AEP,UK,E)...CARBON 100 5% 1/2W
R111	1-246-545-00	CARBON 1M 5% 1/4W
R112	1-247-713-11	(WG).....CARBON 1K 5% 1/4W
R113	1-247-713-11	(WG).....CARBON 1K 5% 1/4W
R151	1-246-545-00	CARBON 1M 5% 1/4W
R152	1-246-545-00	CARBON 1M 5% 1/4W
R153	1-246-545-00	CARBON 1M 5% 1/4W
R154	1-246-545-00	CARBON 1M 5% 1/4W
R155	1-246-545-00	CARBON 1M 5% 1/4W
R156	1-246-545-00	CARBON 1M 5% 1/4W
R157	1-247-713-11	CARBON 1K 5% 1/4W
R158	1-247-713-11	CARBON 1K 5% 1/4W
R159	1-247-713-11	CARBON 1K 5% 1/4W
R160	1-247-713-11	(WG).....CARBON 1K 5% 1/4W
R160	1-247-739-11	(AEP,UK,E)...CARBON 100 5% 1/2W
R161	1-246-545-00	CARBON 1M 5% 1/4W
R162	1-247-713-11	(WG).....CARBON 1K 5% 1/4W
R163	1-247-713-11	(WG).....CARBON 1K 5% 1/4W
R201	1-249-465-11	CARBON 47K 5% 1/4W
R202	1-247-706-11	CARBON 330 5% 1/4W
R203	1-247-700-11	(WG).....CARBON 100 5% 1/4W
R203	1-247-713-11	(AEP,UK,E)...CARBON 1K 5% 1/4W
R204	1-247-516-11	(WG).....CARBON 33 5% 1/4W
R204	1-247-700-11	(AEP,UK,E)...CARBON 100 5% 1/4W
R205	1-247-128-00	CARBON 750 5% 1/4W
R206	1-247-128-00	CARBON 750 5% 1/4W
R207	1-247-700-11	CARBON 100 5% 1/4W
R208	1-247-708-11	CARBON 470 5% 1/4W
R209	1-247-695-11	CARBON 39 5% 1/4W
R210	1-247-704-11	CARBON 220 5% 1/4W

Ref.No.	Part No.	Description
R211	1-247-721-11	CARBON 4.7K 5% 1/4W
R212	1-214-937-00	CARBON 1M 5% 1/2W
R213	1-249-844-11	CARBON 56K 1% 1/2W
R215	1-249-818-11	CARBON 4.7K 1% 1/2W
R217	1-259-501-11	CARBON 6.8 5% 1/2W
R218	1-247-739-11	CARBON 100 5% 1/2W
R219	1-247-704-11	CARBON 220 5% 1/4W
R220	1-247-725-11	CARBON 10K 5% 1/4W
R221	1-247-704-11	CARBON 220 5% 1/4W
R222	1-247-717-11	CARBON 2.2K 5% 1/4W
R223	1-247-723-11	CARBON 6.8K 5% 1/4W
R224 ⚠	1-213-086-00	FUSIBLE 120 5% 1W F
R251	1-249-465-11	CARBON 47K 5% 1/4W
R252	1-247-706-11	CARBON 330 5% 1/4W
R253	1-247-700-11	(WG).....CARBON 100 5% 1/4W
R253	1-247-713-11	(AEP,UK,E)...CARBON 1K 5% 1/4W
R254	1-247-516-11	(WG).....CARBON 33 5% 1/4W
R254	1-247-700-11	(AEP,UK,E)...CARBON 100 5% 1/4W
R255	1-247-128-00	CARBON 750 5% 1/4W
R256	1-247-128-00	CARBON 750 5% 1/4W
R257	1-247-700-11	CARBON 100 5% 1/4W
R258	1-247-708-11	CARBON 470 5% 1/4W
R259	1-247-695-11	CARBON 39 5% 1/4W
R260	1-247-704-11	CARBON 220 5% 1/4W
R261	1-247-721-11	CARBON 4.7K 5% 1/4W
R262	1-214-937-00	CARBON 1M 5% 1/2W
R263	1-249-844-11	CARBON 56K 1% 1/2W
R265	1-249-818-11	CARBON 4.7K 1% 1/2W
R267	1-259-501-11	CARBON 6.8 5% 1/2W
R268	1-247-739-11	CARBON 100 5% 1/2W
R269	1-247-704-11	CARBON 220 5% 1/4W
R270	1-247-725-11	CARBON 10K 5% 1/4W
R271	1-247-704-11	CARBON 220 5% 1/4W
R272	1-247-717-11	CARBON 2.2K 5% 1/4W
R273	1-249-577-11	CARBON 11K 5% 1/4W
R274 ⚠	1-213-086-00	FUSIBLE 120 5% 1W F
R302	1-249-465-11	CARBON 47K 5% 1/4W
R303	1-247-722-11	CARBON 5.6K 5% 1/4W
R304	1-247-722-11	CARBON 5.6K 5% 1/4W
R305	1-247-717-11	CARBON 2.2K 5% 1/4W
R306	1-249-591-11	CARBON 43K 5% 1/4W
R307	1-247-152-00	CARBON 7.5K 5% 1/4W
R308	1-249-465-11	CARBON 47K 5% 1/4W
R309	1-249-465-11	CARBON 47K 5% 1/4W
R310	1-259-502-11	CARBON 4.7M 5% 1/4W
R311	1-259-502-11	CARBON 4.7M 5% 1/4W
R312	1-259-502-11	CARBON 4.7M 5% 1/4W
R313	1-259-502-11	CARBON 4.7M 5% 1/4W
R314	1-259-502-11	CARBON 4.7M 5% 1/4W
R315	1-259-502-11	CARBON 4.7M 5% 1/4W
R316	1-249-590-11	CARBON 39K 5% 1/4W
R317	1-249-469-11	CARBON 100K 5% 1/4W
R318	1-259-502-11	CARBON 4.7M 5% 1/4W
R319	1-259-502-11	CARBON 4.7M 5% 1/4W
R352	1-249-465-11	CARBON 47K 5% 1/4W
R353	1-247-722-11	CARBON 5.6K 5% 1/4W
R354	1-247-722-11	CARBON 5.6K 5% 1/4W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description				
R355	1-247-717-11	CARBON	2.2K	5%	1/4W	
R356	1-249-591-11	CARBON	43K	5%	1/4W	
R357	1-247-152-00	CARBON	7.5K	5%	1/4W	
R358	1-249-465-11	CARBON	47K	5%	1/4W	
R359	1-249-465-11	CARBON	47K	5%	1/4W	
R360	1-259-502-11	CARBON	4.7M	5%	1/4W	
R361	1-259-502-11	CARBON	4.7M	5%	1/4W	
R362	1-259-502-11	CARBON	4.7M	5%	1/4W	
R363	1-259-502-11	CARBON	4.7M	5%	1/4W	
R364	1-259-502-11	CARBON	4.7M	5%	1/4W	
R365	1-259-502-11	CARBON	4.7M	5%	1/4W	
R366	1-249-590-11	CARBON	39K	5%	1/4W	
R367	1-249-469-11	CARBON	100K	5%	1/4W	
R368	1-259-502-11	CARBON	4.7M	5%	1/4W	
R369	1-259-502-11	CARBON	4.7M	5%	1/4W	
R401	1-259-503-11	CARBON	4.7M	5%	1/2W	
R402	1-247-713-11	CARBON	1K	5%	1/4W	
R403	1-247-692-11	CARBON	22	5%	1/4W	
R404	1-247-692-11	CARBON	22	5%	1/4W	
R405	1-247-717-11	CARBON	2.2K	5%	1/4W	
R406	1-247-704-11	CARBON	220	5%	1/4W	
R407	1-247-700-11	CARBON	100	5%	1/4W	
R408	1-247-703-11	CARBON	180	5%	1/4W	
R409	1-247-704-11	CARBON	220	5%	1/4W	
R410	1-246-545-00	CARBON	1M	5%	1/4W	
R412 ⚠	1-219-010-11	FUSIBLE	33	5%	1/2W	
R413	1-249-490-11	CARBON	27K	5%	1/2W	
R414	1-247-704-11	CARBON	220	5%	1/4W	
R415	1-246-531-00	CARBON	270K	5%	1/4W	
R416	1-247-740-11	CARBON	120	5%	1/2W	
R417	1-249-486-11	CARBON	12K	5%	1/2W	
R418	1-247-764-11	CARBON	10K	5%	1/2W	
R419	1-259-503-11	CARBON	4.7M	5%	1/2W	
R420	1-247-715-11	CARBON	1.5K	5%	1/4W	
R421	1-247-721-11	CARBON	4.7K	5%	1/4W	
R422 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R423	1-247-717-11	CARBON	2.2K	5%	1/4W	
R424	1-247-718-11	CARBON	2.7K	5%	1/4W	
R425	1-247-711-11	CARBON	680	5%	1/4W	
R426 ⚠	1-212-998-00	FUSIBLE	470	5%	1/2W	F
R427 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R428 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R429 ⚠	1-212-982-00	FUSIBLE	100	5%	1/2W	F
R430 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R431 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R432 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R433 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R434 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R435 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R436 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R437 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R438 ⚠	1-247-692-11	CARBON	22	5%	1/4W	F
R439 ⚠	1-247-692-11	CARBON	22	5%	1/4W	F
R440 ⚠	1-247-717-11	CARBON	2.2K	5%	1/4W	F
R441	1-249-460-11	CARBON	15K	5%	1/4W	
R442 ⚠	1-219-002-11	FUSIBLE	15	5%	1/2W	
R443	1-247-727-11	CARBON	10	5%	1/2W	

Ref.No.	Part No.	Description				
R444 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R445 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R446	1-247-752-11	CARBON	1K	5%	1/2W	
R447	1-249-478-11	CARBON	2.2	5%	1/2W	
R448	1-249-478-11	CARBON	2.2	5%	1/2W	
R449 ⚠	1-219-002-11	FUSIBLE	15	5%	1/2W	
R450	1-247-752-11	CARBON	1K	5%	1/2W	
R451	1-259-503-11	CARBON	4.7M	5%	1/2W	
R452	1-247-713-11	CARBON	1K	5%	1/4W	
R453	1-247-692-11	CARBON	22	5%	1/4W	
R454	1-247-692-11	CARBON	22	5%	1/4W	
R455	1-247-717-11	CARBON	2.2K	5%	1/4W	
R456	1-247-704-11	CARBON	220	5%	1/4W	
R457	1-247-700-11	CARBON	100	5%	1/4W	
R458	1-247-703-11	CARBON	180	5%	1/4W	
R459	1-247-704-11	CARBON	220	5%	1/4W	
R460	1-246-545-00	CARBON	1M	5%	1/4W	
R462 ⚠	1-219-010-11	FUSIBLE	33	5%	1/2W	
R463	1-249-490-11	CARBON	27K	5%	1/2W	
R464	1-247-704-11	CARBON	220	5%	1/4W	
R465	1-246-531-00	CARBON	270K	5%	1/4W	
R466	1-247-740-11	CARBON	120	5%	1/2W	
R467	1-249-486-11	CARBON	12K	5%	1/2W	
R468	1-247-764-11	CARBON	10K	5%	1/2W	
R469	1-259-503-11	CARBON	4.7M	5%	1/2W	
R470	1-247-715-11	CARBON	1.5K	5%	1/4W	
R471	1-247-721-11	CARBON	4.7K	5%	1/4W	
R472 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R473	1-247-717-11	CARBON	2.2K	5%	1/4W	
R474	1-247-718-11	CARBON	2.7K	5%	1/4W	
R475	1-247-711-11	CARBON	680	5%	1/4W	
R476 ⚠	1-212-998-00	FUSIBLE	470	5%	1/2W	F
R477 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R478 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R479 ⚠	1-212-982-00	FUSIBLE	100	5%	1/2W	F
R480 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R481 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R482 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R483 ⚠	1-217-997-11	FUSIBLE	10	5%	1/2W	
R484 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R485 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R486 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R487 ⚠	1-217-151-00	RES, METAL PLATE 0.22				
R488 ⚠	1-247-692-11	CARBON	22	5%	1/4W	F
R489 ⚠	1-247-692-11	CARBON	22	5%	1/4W	F
R490 ⚠	1-247-717-11	CARBON	2.2K	5%	1/4W	F
R491	1-249-460-11	CARBON	15K	5%	1/4W	
R492 ⚠	1-219-002-11	FUSIBLE	15	5%	1/2W	
R493	1-247-727-11	CARBON	10	5%	1/2W	
R494 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R495 ⚠	1-219-022-11	FUSIBLE	100	5%	1/2W	
R496	1-247-752-11	CARBON	1K	5%	1/2W	
R497	1-249-478-11	CARBON	2.2	5%	1/2W	
R498	1-249-478-11	CARBON	2.2	5%	1/2W	
R499 ⚠	1-219-002-11	FUSIBLE	15	5%	1/2W	
R500	1-247-752-11	CARBON	1K	5%	1/2W	
R501	1-249-469-11	CARBON	100K	5%	1/4W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description				
R502	1-249-469-11	CARBON	100K	5%	1/4W	
R551	1-249-469-11	CARBON	100K	5%	1/4W	
R552	1-249-469-11	CARBON	100K	5%	1/4W	
R601	1-247-891-00	CARBON	330K	5%	1/4W	
R602	1-247-887-00	CARBON	220K	5%	1/4W	
R603	1-247-725-11	CARBON	10K	5%	1/4W	
R604	1-249-461-11	CARBON	18K	5%	1/4W	
R605	1-246-530-00	CARBON	240K	5%	1/4W	
R606	1-247-725-11	CARBON	10K	5%	1/4W	
R607	1-247-717-11	CARBON	2.2K	5%	1/4W	
R608	1-249-465-11	CARBON	47K	5%	1/4W	
R609	1-249-465-11	CARBON	47K	5%	1/4W	
R610	1-249-462-11	CARBON	22K	5%	1/4W	
R611	1-247-750-11	CARBON	680	5%	1/2W	
R612	1-247-717-11	CARBON	2.2K	5%	1/4W	
R613	1-247-754-11	CARBON	1.5K	5%	1/2W	
R614	1-247-754-11	CARBON	1.5K	5%	1/2W	
R616	1-247-693-11	CARBON	27	5%	1/4W	
R617 ⚠	1-249-489-11	CARBON	22K	5%	1/2W	F
R618	1-247-749-11	CARBON	560	5%	1/2W	
R619	1-247-749-11	CARBON	560	5%	1/2W	
R620	1-247-749-11	CARBON	560	5%	1/2W	
R621	1-247-749-11	CARBON	560	5%	1/2W	
R622	1-247-749-11	CARBON	560	5%	1/2W	
R623	1-247-749-11	CARBON	560	5%	1/2W	
R624	1-247-749-11	CARBON	560	5%	1/2W	
R625	1-247-749-11	CARBON	560	5%	1/2W	
R626	1-247-749-11	CARBON	560	5%	1/2W	
R627	1-247-749-11	CARBON	560	5%	1/2W	
R628	1-247-749-11	CARBON	560	5%	1/2W	
R630	1-247-727-11	(WG)...CARBON	10	5%	1/2W	
R631	1-247-255-00	CARBON	4.3K	5%	1/2W	
R632	1-247-255-00	CARBON	4.3K	5%	1/2W	
R633A	1-247-721-11	CARBON	4.7K	5%	1/4W	
R633	1-247-739-11	CARBON	100	5%	1/2W	
R650	1-247-138-00	CARBON	2K	5%	1/4W	
R651	1-247-891-00	CARBON	330K	5%	1/4W	
R652	1-247-721-11	CARBON	4.7K	5%	1/4W	
R653 ⚠	1-212-934-00	FUSIBLE	1	5%	1/2W	F
R680	1-247-727-11	(WG)...CARBON	10	5%	1/2W	
R681	1-247-255-00	CARBON	4.3K	5%	1/2W	
R682	1-247-255-00	CARBON	4.3K	5%	1/2W	
R683	1-247-739-11	CARBON	100	5%	1/2W	
R701 ⚠	1-213-086-00	FUSIBLE	120	5%	1W	F
R751 ⚠	1-213-086-00	FUSIBLE	120	5%	1W	F
RT401	1-237-873-11	RES, ADJ, CARBON 100				
RT402	1-237-455-11	RES, ADJ, CARBON 500				
RT451	1-237-873-11	RES, ADJ, CARBON 100				
RT452	1-237-455-11	RES, ADJ, CARBON 500				
RV301	1-238-416-11	RES, VAR, CARBON 150K/150K (BALANCE)				
RV302	1-238-418-11	RES, VAR, CAOBPN 250K/250K (TREBLE)				
RV303	1-238-417-11	RES, VAR, CARBON 25K/500K (BASS)				
RV304	1-237-175-11	RES, VAR, CARBON 120K/120K(ATTENUATOR)				
RY601	1-515-614-11	RELAY				
RY602	1-515-356-00	RELAY				
RY603	1-515-356-00	RELAY				

Ref.No.	Part No.	Description
S101	1-554-879-11	SWITCH, SLIDE (INPUT SELECTOR)
S102	1-570-593-11	SWITCH, SLIDE (REMOTE TYPE) (INPUT SELECTOR)
S103	1-570-076-11	SWITCH, SLIDE (REMOTE TYPE) (REC OUT SELECTOR)
S201	1-554-019-21	SWITCH, SLIDE (REMOTE TYPE) (CARTRIDGE LOAD)
S301	1-571-773-11	SWITCH, PUSH (2 KEY)(MUTING -20dB)
S302	1-571-773-11	SWITCH, PUSH (2 KEY)(SUBSONIC)
S303	1-571-772-11	SWITCH, PUSH (3 KEY)(TONE)
S304	1-571-774-11	SWITCH, PUSH (1 KEY)(SOURCE DIRECT)
S305	1-571-772-11	SWITCH, PUSH (3 KEY)(TURNOVER)
S306	1-571-772-11	SWITCH, PUSH (3 KEY)(TURNOVER)
S501	1-571-775-11	SWITCH, ROTARY (MODE)
S601	1-571-776-11	SWITCH, ROTARY (SPEAKERS)
S801 ⚠	1-554-538-00	SWITCH, PUSH (AC POWER)(1 KEY)
T1 ⚠	1-449-652-11	(AEP)...TRANSFORMER, POWER
T1 ⚠	1-449-653-11	(WG)....TRANSFORMER, POWER
T1 ⚠	1-449-654-11	(E).....TRANSFORMER, POWER
T1 ⚠	1-449-655-11	(UK)....TRANSFORMER, POWER
TM801	1-536-767-41	TERMINAL BOARD, SPEAKER (SPEAKER A)
TM802	1-536-767-41	TERMINAL BOARD, SPEAKER (SPEAKER B)
VS801 ⚠	1-526-576-51	(E)...SELECTOR, POWER VOLTAGE

ACCESSORY & PACKING MATERIAL

3-786-976-11	(UK,E).....MANUAL, INSTRUCTION
3-786-976-41	(AEP,WG)...MANUAL, INSTRUCTION
4-847-802-00	(EXCEPT UK)...SCREW
4-915-880-01	SHEET, PROTECTION
*4-923-840-01	(E).....INDIVIDUAL CARTON
*4-923-840-11	(AEP,WG)...INDIVIDUAL CARTON
*4-929-262-01	(UK).....INDIVIDUAL CARTON
*4-923-860-01	(AEP,WG,E)...CUSHION
*4-929-219-11	(UK).....CUSHION

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

9-953-829-11
(Including 9-953-829-91)

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